

REMARKS

Claims 1-21 are pending in this application. In the Final Office Action,¹ the Examiner took the following actions:

- (I) rejected claims 1-19 under 35 U.S.C. § 103(a) as being unpatentable over *Kanade et al.* (U.S. Patent Application Publication No. 2005/0135680, "*Kanade*") in view of *Leger* (U.S. Patent No. 5,978,504, "*Leger*");²
- (II) rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over *Kanade* in view of *Leger* and further in view of *Mitaka et al.* (U.S. Patent No. 5,546,476, "*Mitaka*"); and
- (III) rejected claims 20 and 21 under 35 U.S.C. § 103(a) as being unpatentable over *Kanade* in view of *Leger* and further in view of *Lewis* (U.S. Patent Application Publication No. 2004/0138780, "*Lewis*").

By this Amendment, Applicant has amended claims 1, 12-15, and 19. Support for the amendments can be found in the specification at, for example, page 38, line 5-12. Claims 1-21 remain pending in this application. For the following reasons, Applicant respectfully traverses these rejections and requests reconsideration in light of the amendments.

I. The rejection of claims 1-19 under 35 U.S.C. § 103(a)

Applicant respectfully traverses the rejection of claims 1-19 under 35 U.S.C. § 103(a) as being unpatentable over *Kanade* in view of *Leger*.

¹ The Final Office Action may contain statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement or characterization in the Final Office Action.

² The Final Office Action provides no reason to reject claim 5 under this rejection.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. M.P.E.P. § 2142, 8th Ed., 7 (July 2008). “A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put the public in possession of the claimed invention.” M.P.E.P. § 2145. Furthermore, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art” at the time the invention was made. M.P.E.P. § 2143.01(III), internal citation omitted. Moreover, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences *themselves* would have been obvious, but whether the claimed invention *as a whole* would have been obvious.” M.P.E.P. § 2141.02(I), internal citations omitted (emphasis in original).

“[T]he framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). ... The factual inquiries...[include determining the scope and content of the prior art and]...[a]scertaining the differences between the claimed invention and the prior art.” M.P.E.P. § 2141(II). “Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art.” M.P.E.P. § 2141(III). Here, no *prima facie* case of obviousness has been established, for at least the reason that the Final Office Action has failed to properly determine the scope and content of the prior art, and has failed to ascertain the differences between the prior art and the claimed combinations.

Claim 1 recites a combination including

a line fitting means for **forming** at least a **line** from each group of distance data points estimated to be in one plane in a three-dimensional space . . . the line fitting means **forming lines using a changeable threshold** adapted to distribution of distance data points and noises included in the group of distance data points

(emphasis added). *Kanade* and *Leger*, taken alone or in combination, fail to disclose or suggest these elements of claim 1.

The Examiner contends that *Kanade* teaches the claimed “changeable threshold adapted to . . . noises included in the group of distance data points” because Fig. 12 and paragraphs [0069], [0071], [0072], and [0074] of *Kanade* disclose a “stricker threshold” and a “loose threshold.” However, Fig. 12 and paragraphs [0069], [0071], [0072], and [0074] of *Kanade* and the alleged “changeable threshold” therein are directed to **grouping** lines that have been formed already, not “**forming** lines,” as recited in claim 1.

Kanade discloses that “[i]n the processing of the parallel **line grouping** block 804,” four different constraints are used. *Kanade* at paragraph [0071] (emphasis added). *Kanade* further discloses how to use these constraints:

If the first through third threshold values are set loosely, then line segments that are clearly not parallel and completely unrelated line segments will be selected as line segment pairs, so detection errors will increase. Conversely, if the threshold values are set too strictly, detection errors will decrease but there is a probability that the required staircase regions or portions thereof will be left out of the candidate regions. To solve this problem, each of the first through third threshold values is set to two levels of values, and as shown in FIG. 12, the processing regions are first selected based on the stricter threshold values and next the selected regions are expanded using the looser threshold values.

Thus, Fig. 12 and paragraphs [0069], [0071], [0072], and [0074] of *Kanade* teach thresholds to **group** lines, not thresholds to **form** lines. Fig. 12 and paragraphs [0069], [0071], [0072], and [0074] of *Kanade* therefore do not disclose or suggest

a line fitting means for **forming** at least a **line** from each group of distance data points estimated to be in one plane in a three-dimensional space . . . the line fitting means **forming lines using a changeable threshold** adapted to distribution of distance data points and noises included in the group of distance data points,

as recited in claim 1(emphasis added).

Kanade does disclose how to form lines. Paragraph [0064] of *Kanade* discloses:

The black and white grayscale image (not shown) input from the right-side camera via the image input selection block 800 is sent to a line-segment extraction block 802, where a known differential edge extraction operator is used to extract the pixels with a large variation in optical density within the image. Next, among the edge pixels thus extracted, those that line up in a straight line are connected to extract line segment elements (comprising straight lines) as two-dimensional image information.

However, neither this portion nor any other portion of *Kanade* teaches or suggests a “**changeable threshold adapted to . . . noises** included in the group of distance data points” for “**forming lines**,” as recited in claim 1 (emphasis added).

Leger fails to cure the deficiencies of *Kanade*. The Final Office Action asserts that “Leger teaches: a planar region growing means for extracting a plurality of lines estimated to be in one plane from a group of lines extracted by the line fitting means to calculate a plane from the plurality of lines (fig. 1, 24 see also col. 3 lines 43-46).” Final Office Action at pages 3. Even assuming the Final Office Action’s characterization of *Leger* is correct, which Applicant does not concede, *Leger* still fails to disclose or suggest the above-quoted elements of claim 1

In view of the above deficiencies, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and claim 1. Accordingly, no reason has been clearly articulated as to why claim 1 would have been obvious to one of ordinary skill in the art in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for claim 1, and claim 1 is allowable.

Claims 2-11 are also allowable at least due to their dependence from claim 1.

Independent claims 12 and 19, although of different scope, recite elements similar to those of claim 1. For reasons similar to those discussed above with respect to claim 1, independent claims 12 and 19 are allowable. Claims 13-18 are also allowable due to their dependence from claim 12.

II. The rejection of claim 5 under 35 U.S.C. § 103(a)

Applicant respectfully traverses the rejection of claim 5 under 35 U.S.C. § 103(a) as being unpatentable over *Kanade* in view of *Leger* and *Mitaka*.

Claim 5 depends from and includes each and every element of claim 1. As discussed above, *Kanade* and *Leger*, taken alone or in combination, fail to disclose or suggest

a line fitting means for **forming** at least **a line** from each group of distance data points estimated to be in one plane in a three-dimensional space . . . the line fitting means **forming lines using a changeable threshold** adapted to distribution of distance data points and noises included in the group of distance data points,

as recited in claim 1 and included in claim 5 (emphasis added).

Mitaka fails to cure the deficiencies of *Kanade* and *Leger*. The Final Office Action asserts that “*Mitaka* teaches: The apparatus, wherein the line fitting means segments

the distance data point group when the standard deviation of the distance data point group from which the first line has been determined is larger than a predetermined threshold (fig 2 see also col. 14 lines 10-20)." Final Office Action at page 10. Even assuming the Final Office Action's characterization of *Mitaka* is correct, which Applicant does not concede, *Mitaka* still fails to disclose or suggest the above-quoted elements recited in claim 1 and included in claim 5.

In view of the above deficiencies, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and claim 5. Accordingly, no reason has been clearly articulated as to why claim 5 would have been obvious to one of ordinary skill in the art in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for claim 5, and claim 5 is allowable.

III. The rejection of claims 20 and 21 under 35 U.S.C. § 103(a)

Applicant respectfully traverses the rejection of claims 20 and 21 under 35 U.S.C. § 103(a) as being unpatentable over *Kanade* in view of *Leger* and *Lewis*.

Claims 20 and 21 depend from and include each and every element of independent claim 19. As discussed above, Kanade and Leger, taken alone or in combination, do not disclose or suggest at least

a line fitting means for **forming** at least a **line** from each group of distance data points estimated to be in one plane in a three-dimensional space . . . the line fitting means **forming lines using a changeable threshold** adapted to distribution of distance data points and noises included in the group of distance data points,

as recited in claim 19 and included in claims 20 and 21 (emphasis added).

Lewis fails to cure the deficiencies of *Kanade* and *Leger*. The Final Office Action

asserts that “Lewis teaches: The apparatus, further comprising a texture imparting means for imparting a texture to an object (fig. 10, 49 see also [0066]) . . . [and] wherein the texture imparting means projects a texture to the object when acquiring the three-dimensional distance data (fig. 10, 47 see also [0066]).” Office Action at page 11. Even assuming the Final Office Action’s characterization of *Lewis* is correct, which Applicant does not concede, *Lewis* still fails to disclose or suggest the above-quoted elements recited in claim 19 and included in claims 20 and 21.

In view of the above deficiencies, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and claims 20 and 21. Accordingly, no reason has been clearly articulated as to why claims 20 and 21 would have been obvious to one of ordinary skill in the art in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for claims 20 and 21, and claims 20 and 21 are allowable.

In view of the foregoing remarks, Applicant respectfully requests the reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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